

CLAIMS

1. A compound storage circuit that includes a volatile storage circuit and a nonvolatile storage circuit connected in parallel to each other and that is arranged such that information equal to storage information stored in the volatile storage circuit is stored into the nonvolatile storage circuit, the compound storage circuit comprising a determination circuit for comparing first storage information stored in the volatile storage circuit with second storage information that has already been stored in the nonvolatile storage circuit when the storage information stored in the volatile storage circuit is written into the nonvolatile storage circuit, wherein

the first storage information is written into the nonvolatile storage circuit only when the first storage information is not equal to the second storage information.

2. The compound storage circuit according to Claim 1, wherein the determination circuit includes:

comparison determination means for comparing the first storage information with the second storage information; and

writing means for writing the first storage information into the nonvolatile storage circuit only when the first storage information is not equal to the second storage information.

3. The compound storage circuit according to Claim 1 or 2, wherein the nonvolatile storage circuit includes a magnetic tunnel junction element as storage means.

4. The compound storage circuit according to Claim 1, wherein:

when electric power supplied to the volatile storage circuit is reduced, the storage information stored in the volatile storage circuit is written into the nonvolatile storage circuit; and

when power supply resumes after the electric power supplied is reduced, the storage information stored in the nonvolatile storage circuit is returned into the volatile storage circuit.

5. The compound storage circuit according to Claim 4, wherein each of the volatile storage circuit and the nonvolatile storage circuit includes power source supply means that operates when the electric power supplied is reduced.

6. The compound storage circuit according to Claim 4 or 5, wherein the nonvolatile storage circuit includes a magnetic tunnel junction element as storage means.

7. The compound storage circuit according to Claim 4 or 5, wherein the determination circuit includes:

comparison determination means for comparing the first storage information with the second storage information; and

writing means for writing the first storage information into the nonvolatile storage circuit only when the first storage information is not equal to the second storage information.

8. The compound storage circuit according to Claim 7, wherein the nonvolatile storage circuit includes a magnetic tunnel junction element as storage means.

9. A semiconductor device including a compound storage circuit that includes a volatile storage circuit and a nonvolatile storage circuit connected in parallel to each other and that is arranged such that information equal to storage information stored in the volatile storage circuit is stored into the nonvolatile storage circuit, the semiconductor device comprising a determination circuit for comparing first storage information stored in the volatile storage circuit with second storage information that has already been stored in the nonvolatile storage circuit when the storage information stored in the volatile storage

circuit is written into the nonvolatile storage circuit,
wherein

the first storage information is written into the
nonvolatile storage circuit only when the first storage
information is not equal to the second storage information.

10. The semiconductor device according to Claim 9,
wherein the determination circuit includes:

comparison determination means for comparing the first
storage information with the second storage information; and

writing means for writing the first storage information
into the nonvolatile storage circuit only when the first
storage information is not equal to the second storage
information.

11. The semiconductor device according to Claim 9 or 10,
wherein the nonvolatile storage circuit includes a magnetic
tunnel junction element as storage means.

12. The semiconductor device according to Claim 11,
wherein:

when electric power supplied to the volatile storage
circuit is reduced, the storage information stored in the
volatile storage circuit is written into the nonvolatile
storage circuit; and

when power supply resumes after the electric power supplied is reduced, the storage information stored in the nonvolatile storage circuit is returned into the volatile storage circuit.

13. The semiconductor device according to Claim 12, wherein each of the volatile storage circuit and the nonvolatile storage circuit includes power source supply means that operates when the electric power supplied is reduced.

14. The semiconductor device according to Claim 12 or 13, wherein the nonvolatile storage circuit includes a magnetic tunnel junction element as storage means.

15. The semiconductor device according to Claim 12 or 13, wherein the determination circuit includes:

comparison determination means for comparing the first storage information with the second storage information; and

writing means for writing the first storage information into the nonvolatile storage circuit only when the first storage information is not equal to the second storage information.

16. The semiconductor device according to Claim 15,

wherein the nonvolatile storage circuit includes a magnetic tunnel junction element as storage means.